



Organoleptic Characteristics of Flavor Materials

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Judith Michalski is joined by Gerard Mosciano, consulting flavor chemist; Carl Holmgren, consulting flavor chemist; William Jaggard, Bell Flavors; Douglas Young, principal flavorist, Symrise; and Tom Gibson, creative director, Silesia Flavors in the organoleptic evaluations presented here. Natural occurrence information is from Leffingwell & Associates.

Suppliers: Suggest materials for evaluation to Judith Michalski; judithmichalskillc@gmail.com.

Suppliers of most materials found in this report can be located in Allured's *Flavor & Fragrance Materials*, published by Allured Business Media, 336 Gundersen Drive, Suite A, Carol Stream, IL 60188-2403 USA; telephone 1-630-653-2155; fax 1-630-653-2192;

www.PerfumerFlavorist.com.

Anisole (synonym: Methoxybenzene)

Source: Penta Manufacturing Co.

FEMA#2097, CAS# 100-66-3

Natural occurrence: Apple, olive, dill, cooked beef, tarragon (dragon's wort).

Odor: @ 1%. Naphthalenelike, slight anise.

Taste: @ 2 ppm. Naphthalenelike and tarry.

Taste: @ 5 ppm. Naphthalenelike, musty and slight anise.

Possible applications: This old-line FEMA compound gives the "black" note in licorice and can also be used in allied flavors like tarragon, anise and fennel.

►Penta Manufacturing Co.; www.pentamfg.com

n-Butyl Salicylate

Source: Penta Manufacturing Co.

FEMA# 3650, CAS# 2052-14-4

Natural occurrence: Mountain papaya (chamburo).

Odor: @ 100%. Harsh, floral, sweet, cooling with wintergreen notes throughout.

Taste: @ 1 ppm. Cooling, floral, sweet and wintergreenlike.

Taste: @ 2 ppm. Floral, cooling and wintergreenlike.

Possible applications: Since n-butyl salicylate bears a similarity to methyl salicylate, it can be used with the latter and anise/anethol to add an interesting dimension in anise, wintergreen, fennel, root beer, mint and allied oral care flavors, fruit flavors such as cherry, and some tropicals.

►Penta Manufacturing Co.; www.pentamfg.com

Caryophyllene Alcohol

Source: Berjé Inc.

FEMA# 4410, CAS# 56747-96-7

Natural occurrence: Guava leaf, laurel leaf, lime oil and black pepper oil.

Odor: @ 1%. Softly green, woody, clovelike and slightly floral.

Taste: @ 5 ppm. Woody, slightly spicy, herbal with a peppery bite.

Taste: @ 15 ppm. Green, slightly clovelike and terpeney.

Possible applications: At higher levels caryophyllene alcohol gives an interesting terpene note that could be used in tropicals like mango and lychee, as well as in citrus flavors, especially lime. Because of its spiciness, almost similar to a 'soft eugenol,' it would also blend well in oral care flavors and sweet spices. Other uses for this chemical include parsley, cilantro, carrot, and mint flavors.

►Berjé Inc.; www.berjeinc.com

Cinnamyl Butyrate

Source: Penta Manufacturing Co.

FEMA# 2296, CAS# 103-61-7

Natural occurrence: Apple.

Odor: @ 1%. Sweet, fruity, slightly spicy with balsamic undertones.

Taste: @ 5 ppm. Sweet and fruity.

Taste: @ 15 ppm. Sweet, fruity, jammy and slightly brown.

Possible applications: Another interesting old-line chemical, cinnamyl butyrate is very useful in sweet, fruity flavors like apple, peach, apricot, plum, grape and berry flavors. At higher levels its brown notes will lend character to dried fruit flavors such as raisin, date, prune and possibly tamarind.

► **Penta Manufacturing Co.;** www.pentamfg.com

Citronellyl Phenylacetate

Source: Penta Manufacturing Co.

FEMA# 2315, CAS# 139-70-8, Not yet found in nature

Odor: @ 100%. Sweet, floral, rosy, honeylike, lemon and oily.

Taste: @ 5 ppm. Floral, rosy and fruity.

Taste: @ 15 ppm. Floral, rosy, honeylike and fruity.

Possible applications: This material, with its dual rosy/honey character, fits nicely into fruits like peach, apricot and apple, as well as berry flavors, primarily raspberry and mulberry. Naturally, honey is a good candidate for its use. This material may also lend some interesting depth to cocoa.

► **Penta Manufacturing Co.;** www.pentamfg.com

Cuminyl Alcohol (synonym: Isopropylbenzyl Alcohol)

Source: Penta Manufacturing Co.

FEMA# 2933, CAS# 536-60-7

Natural occurrence: Cumin seeds, black currant, caraway, dill, tomato, angelica seed, guava.

Odor: @ 1%. Warm, spicy, cumin, slightly green, herbal with low, terpenelike undertones.

Taste: @ 10 ppm. Warm, herbal and spicy.

Taste: @ 20 ppm. Spicy, cumin, herbal and slightly brown notes.

Possible applications: This material is highly characteristic of cumin and is a good fit for single spice flavors like cumin and cinnamon, as well as caraway spice blends.

► **Penta Manufacturing Co.;** www.pentamfg.com

Cycloheptadeca-9-en-1-one (synonym: cis-Civetone)

Source: Penta Manufacturing Co.

FEMA# 3425, CAS# 542-46-1

Natural occurrence: Civet

Odor: @ 1.0%. Musky, warm and sweet.

Taste: @ 0.5 ppm. Warm, musky, soapy, berrylike and red licoricelike.

Taste: @ 1 ppm. Soapy, perfumelike and musky.

Possible applications: This very powerful flavoring agent is the essence of musk. At very low levels it adds warmth and brilliance to dried fruit flavors, blackberry, raspberry, and candy-type berries, along with red and black licorices. Because of its unique organoleptic qualities, this material could also add an interesting twist to

anise, cordial and oral hygiene flavors. At higher levels it loses all subtlety and crosses the line into perfume.

► **Penta Manufacturing Co.;** www.pentamfg.com

2-Ethyl-5(6)-Methyl Pyrazine Mixture

Source: SAFC

FEMA# 3154/3919, CAS# 13360-64-0/13925-03-6

Natural occurrence: Cocoa, coffee, soy sauce, roasted peanuts, black tea.

Odor: @ 1%. Musty, green, earthy, coffee grounds and slightly cocoalike.

Taste: @ 2 ppm. Musty, nutty and burnt.

Taste: @ 5 ppm. Earthy, musty, nutty and cocoalike.

Possible applications: This material is an interesting combination of burnt and raw notes. It can be used in potato, coffee and cocoa flavors to great advantage. Its nutty quality also enhances bread crust, nut and black tea flavors.

► **SAFC;** www.sigmaaldrich.com

Ethyl-4-Phenyl Butyrate

Source: Penta Manufacturing Co.

FEMA# 2453, CAS# 10031-93-3, Not yet found in nature

Odor: @ 100%. Sweet, fruity, ripe, slightly floral and honeylike.

Taste: @ 1 ppm. Musty, sweet, brown and slightly floral.

Taste: @ 2 ppm. Sweet, fruity, slightly honeylike and brown.

Possible applications: This is a very interesting material.

The ripe, fruity notes present in the odor of this material are belied by its sweet, brown, honeylike taste. Good uses for it are brown flavors like honey, cocoa and caramel. It can also be used in fruit flavors to add a cooked, jammy character.

► **Penta Manufacturing Co.;** www.pentamfg.com

Geranyl Acetoacetate

Source: Penta Manufacturing Co.

FEMA# 2510, CAS# 61759-64-6, Not yet found in nature

Odor: @ 100%. Green, sweet, rosy, woody and fruity.

Taste: @ 1 ppm. Musty, slightly floral and berrylike.

Taste: @ 3 ppm. Green, rosy and fruity, primarily raspberrylike.

Possible applications: The fruity and floral notes of geranyl acetoacetate make it a natural choice for berry flavors, especially raspberry, blueberry, blackberry, etc. Other flavors that would benefit from it are apricot, peach, pear, plum, and some tropicals like lychees.

► **Penta Manufacturing Co.;** www.pentamfg.com